OPERATING MANUAL

JDS6600 Series
Digital Control Dual-channel
DDS Signal Generator

Rev1.0

MAY 2017

Contents

1.Inspecting Package Contents

When you get a new JDS6600 series dual channel DDS signal generator, please inspect device as follows:

1.1 Inspect the shipping container for damage.

If there are damages in the container or foam, keep them until the whole machine and the accessories passing the electrical and mechanical tests. If your instrument has damaged during shipping, please contact your seller and us for compensation.

1.2 Check the Accessories

All contents are as follows, if there is missing, damage or wrong, please contact us or reseller.

Host：JDS6600		**1pcs**
Accessories：	**DC adapter**	**1pcs**
	USB cable	**1pcs**
	Signal output cable	**2pcs**
	User manual (PDF)	**1pcs**
	CD	**1pcs**

1.3 Check the instrument

In case of any mechanical damage or defect, or if the instrument does not operate properly or pass the electrical and mechanical tests, you can contact us or reseller.

2. Summary

2.1 Brief Introduction

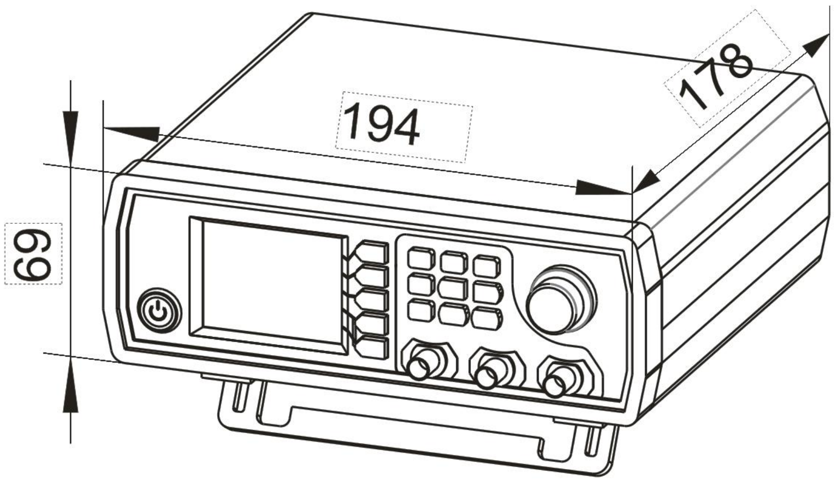
JDS6600 series DDS signal generator can generate sine wave, square wave, triangle wave, pulse wave, and arbitrary wave etc. The frequence will be upto 60MHz. And it has duty-cycle correction, amplitude modulation function and frequency sweep function, etc. It can show output signal, amplitude and frequency in the same time. This series has amplitude frequency characteristics, and the appearance is very delicate and beautiful. It can be applied in factories, schools, research institutes and laboratories.

2.2、Model Introduction

There are 5 models, JDS6600-60M,JDS6600-50M,MJDS6600-40M, JDS6600-30M and JDS6600-15M. The main difference is the max output frequency of sin wave, as follows:

Model	The max output frequency of sin wave
JDS6600-60M	60MHz
JDS6600-50M	50MHz
JDS6600-40M	40MHz
JDS6600-30M	30MHz
JDS6600-15M	15MHz

2.3



Note ：Unit mm

2.4 Technical parameters

<table>
<tr><th colspan="6">Frequency Characteristics</th></tr>
<tr><td></td><td>JDS6600-15M</td><td>JDS6600-30M</td><td>JDS6600-40M</td><td>JDS6600-50M</td><td>JDS6600-60M</td></tr>
<tr><td>Sine frequency range</td><td>0~15MHz</td><td>0~30MHz</td><td>0~40MHz</td><td>0~50MHz</td><td>0~60MHz</td></tr>
<tr><td>Square frequency range</td><td rowspan="2">0~15MHz</td><td rowspan="2">0~15MHz</td><td rowspan="2">0~15MHz</td><td rowspan="2">0~15MHz</td><td rowspan="2">0~15MHz</td></tr>
<tr><td>Triangle frequency range</td></tr>
<tr><td>Pulse frequency range</td><td rowspan="3">0~6MHz</td><td rowspan="3">0~6MHz</td><td rowspan="3">0~6MHz</td><td rowspan="3">0~6MHz</td><td rowspan="3">0~6MHz</td></tr>
<tr><td>CMOS/TTL digital frequency range</td></tr>
<tr><td>Arbitrary wave frequency range</td></tr>
<tr><td>Square rise time</td><td>≤25nS</td><td>≤20nS</td><td>≤15nS</td><td>≤15nS</td><td>≤15nS</td></tr>
<tr><td>Pulse width adjustment range</td><td>150nS-4000S</td><td>60nS-4000S</td><td>40nS-4000S</td><td>30nS-4000S</td><td>30nS-4000S</td></tr>
<tr><td>Mininum Frequency resolution</td><td colspan="5">0.01μHz（0.00000001Hz）</td></tr>
<tr><td>Frequency accuracy</td><td colspan="5">±20ppm</td></tr>
<tr><td>Frequency stability</td><td colspan="5">±1ppm/3h</td></tr>
</table>

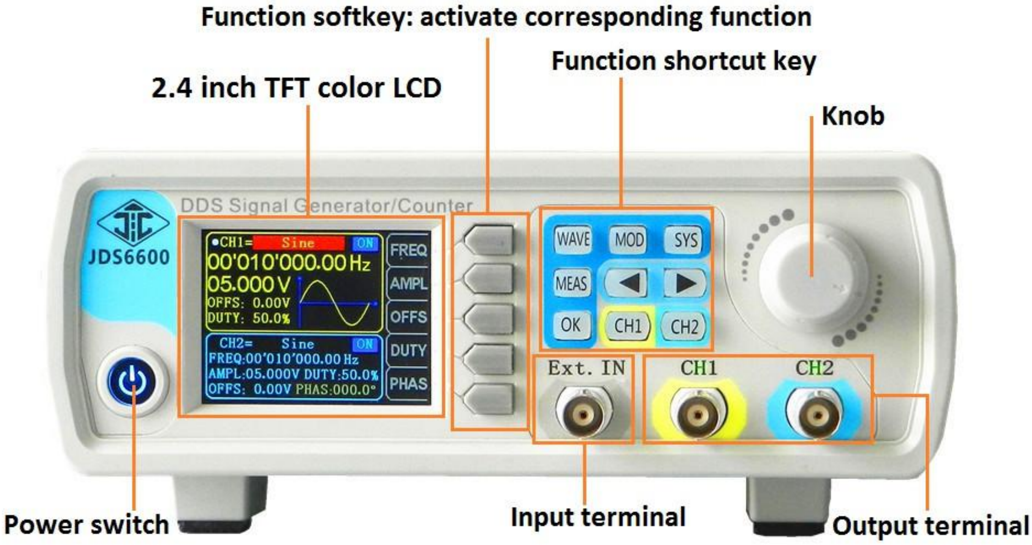
<table>
<tr><th colspan="3">Waveform Characteristics</th></tr>
<tr><td>Waveform</td><td colspan="2">Sine, Square, Triangle, Pulse (duty-cycle correction,Pulse width and cycle time adjustable),Partia Sine, CMOS, DC level, Half-wave, Full-Wave, Pos-Ladder, Neg-Ladder, Noise, Exponential Rise, Exponential Fall, Tone, Sinc Pulse, Lorentz Pulse, and 60 kinds user defined waveform.</td></tr>
<tr><td>Waveform length</td><td colspan="2">2048 points</td></tr>
<tr><td>Waveform sampling rate</td><td colspan="2">266MSa/s</td></tr>
<tr><td>Waveform vertical resolution</td><td colspan="2">14bits</td></tr>
<tr><td rowspan="2">Sine</td><td>Harmonic suppression</td><td>≥45dBc(<1MHz);
≥40dBc(1MHz~20MHz)</td></tr>
<tr><td>Total harmonic distortion</td><td><0.8%(20Hz~20kHz,0dBm)</td></tr>
<tr><td rowspan="2">Square and Pulse</td><td>Overshoot (Square)</td><td>≤5%</td></tr>
<tr><td>Duty-cycle range（Pulse）</td><td>0.1%~99.9%</td></tr>
</table>

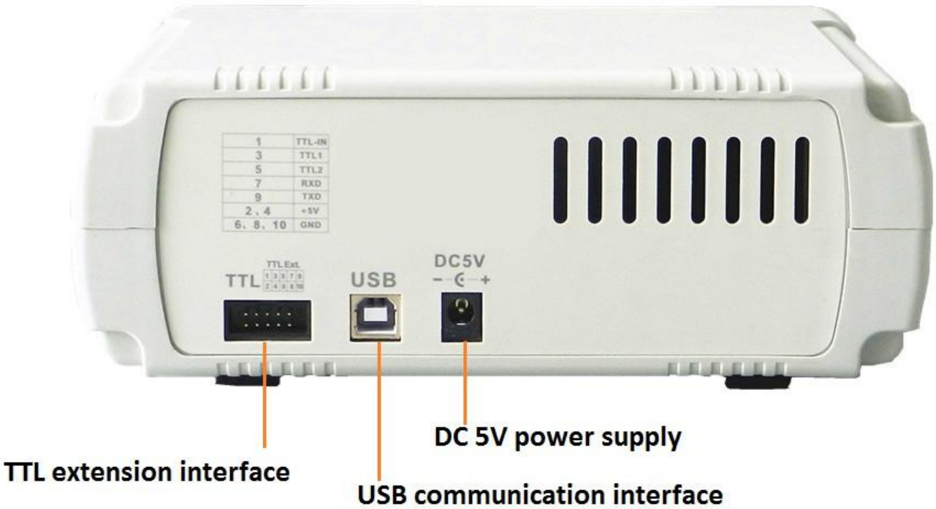
Ramp wave	Linearity	≥98%(0.01Hz~10kHz)	
Output Characteristics			
Amplitude range	Frequency≤10MHz	10MHz≤Frequency≤30MHz	30MHz≤Frequency
	2mVpp~20Vpp	2mVpp~10Vpp	2mVpp~5Vpp
Amplitude resolution	1mV		
Amplitude stability	±0.5%/5 h		
Amplitude flatness	±5%(<10MHz); ±10%(>10MHz)		
Waveform Output			
Output impedance	50Ω±10%（typical）		
Protection	All the signal output termianl can be shorted within 60s		
DC Offset			
Offset adjusting range	Output Amplitude >4V	0.4V＜Output Amplitude≤4V	0＜Output Amplitude≤0.4V
	-9.99V~9.99V	-2.5V~2.5V	-0.25V~0.25V
Offset resolution	0.01 V		
Phase characteristics			
Phase adjusting range	0~359.9°		
Phase resolution	0.1°		
TTL/COMS Output			
Low level	<0.3V		
High level	1V~10V		
Level rise/fall time	≤20ns		
External Measurement Function			
Frequency meter function	Frequency measurement range	1Hz~100MHz	
	Measurement accuracy	Gate time continuously adjusted between0.01s~10s	
Counter function	Counting region	0-4294967295	
	Coupled mode	2kinds Coupling modes, DC and AC	
	Control mode	Manual operation	
Input signal voltage range	2Vpp~20Vpp		
Pulse width measurement	0.01us (resolution), 20s (MAX measuring time)		
Period measurement	0.01us (resolution), 20s (MAX measuring time)		
Sweep Function			

Sweep channel	CH1 or CH2	
Sweep type	linear sweep、log sweep	
Sweep time	0.1s~999.9s	
Setting range	User settings	
Sweep direction	Forward, Backward and Roundtrip	
Burst function		
Number of pulses	1-1048575	
Burst mode	Manual Trig、CH2 Trig、Ext.Tring(AC) 、Ext.Tring(DC)	
General technical parameters		
Display	Display type	2.4 inch TFT color LCD
Storage and loading	Quantity	100 groups
	Location	00 to 99（Power on will load the position 00）
Arbitrary wave	quantity	1 to 60, totally 60 groups（default set 15 groups）
Interface	Interface mode	USB to serial interface
	Extension interface -	There is serial interface of TTL level mode to be convenient for user development.
	Communication speed	115200bps
	communication protocol	Command-line mode, Open protocol
Power supply	Voltage range	DC5V±0.5V
Manufacturing process	Surface-mount technology, FPGA design, high reliability, long service life	
Buzzer	User can set ON or OFF by procedure	
Operating characteristics	Full button operation, knob continuous adjustment	
Environmental conditions	Temperature：0~40 °CHumidity:<80%	

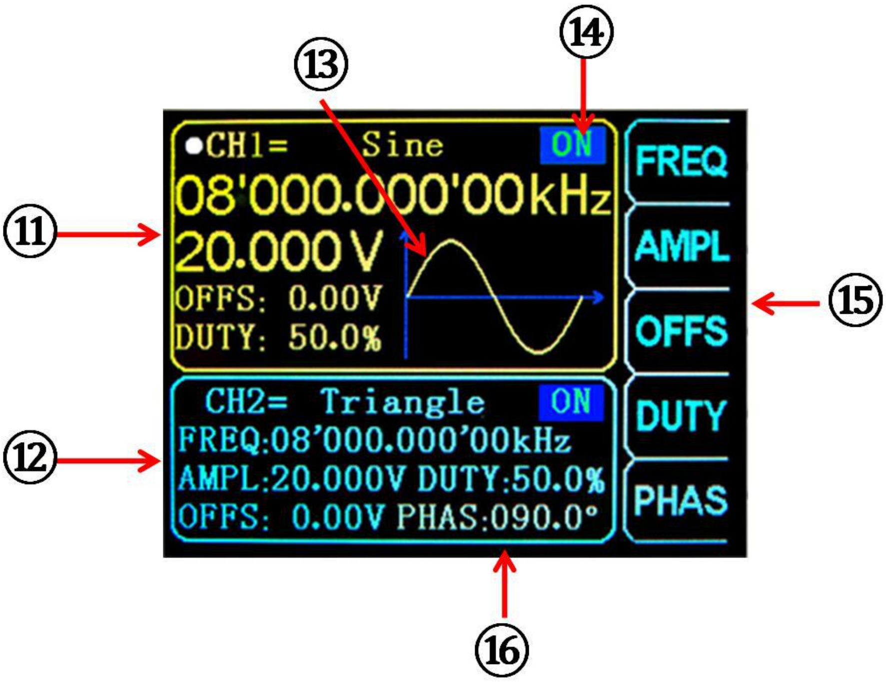
3. Instrument Introduction

3.1 Front Panel Introduction





3.2Display Interface Introduction



11-CH1 Parameters
12- CH2 Parameters
13-Wave Display
14-Current Channel Output State
15-Function list ofSoftkey
16-Phase angle between CH1 and CH2

3.3 Button function Introduction

name	Introduction
Function softkey	Function softkey can activate the corresponding function on the screen
WAVE	Enter main interface, or set waveform of currentchannel
MEAS	Fast switch between measurement mode interface and main interface
MOD	Fast switch betweenmodulation mode interface and main interface
SYS	Fast switch between system setting interface and main interface
OK	In main interface, press it to control output of CH1 and CH2 in the same time; in modulation mode interface, press it to control ON/OFF
	When setting parameter， press it to move cursor to set step value.
CH1	Press it to enter CH1 channel, and press it again to control output of CH1, You can keep pressing for more than 1sto set CH1 into theprimary channel.
CH2	Press it to enter CH2 channel, and press it again to control output of CH2, you can keep pressing for more than 1s to set CH2 into the primary channel.

4. Operation Introduction

Press the power button, the instrument starts and enters welcome interface, and then enters language selection interface. Press corresponding softkey to choose language, and then enter the main interface lastly. When you start the instrument in the future, there is no language selection interface, entering the main interfac directly.



Welcome Interface



Language Selection Interface

4.1 Introduction of Main Interface

4.1.1 Press OK to open or close the outputof both channels in the same time.

4.1.2 Select channel：Press CH1 or CH2 to select current channel.Press again to control the channel ON/OFF.

Keep pressing CH1 or CH2 keyfor more than 1 secondto set the current channel as the primary channel.

4.1.3 Set waveform： Press WAVE key toset waveform of current channel; rotate knob to set waveform quickly. press ◀ ▶ to switch between arbitrary waveforms and presetwaveforms.

4.1.4 Set frequency: press [FREQ] softkey to enter frequency setting, and press ◀ ▶ to move cursor to set the step value. And then rotate the knob to adjust value; keep pressing [FREQ] softkey for more than 1 second to change frequency unit.

4.1.5 Other parameters setting aresame as 4.1.14 (Keep pressing [OFFS], [DUTY] and [PHAS] to Initialize to default values)

4.2 Introduction of measurement mode interface

4.2.1 On measurement mode, press [FUNC] softkey to enter the state of switching between measure and counter.

4.2.2 Coupling set：press [COUP]softkey can set the coupling mode to AC and DC.

4.2.3 Set gate time：press [GATE] to set gate time. and press ◀ ▶ can set step value. And then rotate knob to adjust value. [MODE] setting is as above. name

4.2.4The operation at counter function are almost same to the operation of measure function.

4.3 Introduction of modulation mode interface

4.3.1 On modulation mode interface, press [FUNC] softkey to enter the state of switching between sweep frequency (CH1 and CH2)and burst function.

4.3.2 On sweep frequency function (CH1), press ▲ ▼ move cursor to choose editeditem, after the item selected, you can press ◀ ▶ (or press CHG softkey)and rotate knob to adjust value.

4.3.3 After set all items, press ON softkey to start sweep frequency function, and press OFF to stop.

4.3.4 Other function operation are almost same as above.

4.4Introduction ofsystem setting interface

4.4.1 Recall and store：it can recall and store current waveform parameter to the specific place, rotate knob to the specific place. When you want to recall, store and delate, press corresponding softkey.

4.4.2 Sync: When sync, CH1 is the object of operation. CH2 parameter will be changed with the changes of CH1 parameter. When the sync item is selected, you can press ◀ ▶ or knob to select the sync item needed, press ON softkey to select and press OFF softkey to cancel.

4.4.3 Other function on system setting interface and other interface operation are similar as above.